

REMARKS/ARGUMENTS

Claims 1, 4-7 and 9-10 are currently pending in this application. Independent claim 1 was amended to further define the invention over the cited prior art. Support for all amendments may be found in the application as originally filed.

Claims 1, 4-7 and 9 stand rejected under 35 U.S.C. §103(a) for obviousness over Applicants' admitted prior art (hereinafter "AAPA") in view of U.S. Patent No. 6,009,913 to Kojima et al. (hereinafter "Kojima").

Amended independent claim 1 defines a fuel tank having improved durability and corrosion resistance properties made from an Al-coated steel sheet. The steel sheet has an alkali-soluble protective resin film formed directly on a surface of the Al-coated steel sheet. The Al-soluble resin film is removable from the surface of the Al-coated steel sheet after press-forming to a final shape. The resin film is soluble in an alkali liquid of pH 9.0 or higher, and has a carboxyl group in its molecule with an acid value 40-90.

AAPA (JP 6-306637, JP 9-053166), as discussed on page 2, line 19 to page 3, line 3 of the application, discloses an Al-coated steel sheet to which an organic resin film dispersing metal powder is applied. An oxide film is formed on the surface of the Al plating layer to protect the Al-coated steel sheet from an organic acid.

Kojima discloses a lubricant surface-treated steel pipe for hydroforming use. The lubricant is a resin coating that is soluble in an alkali aqueous solution, which may or may not be removed from the hydroformed product. The resin coating is usually provided on the outer surface of the steel pipe to provide lubrication between dies during hydroforming.

Applicants respectfully disagree with the Examiner's conclusion that it would have been obvious to one of ordinary skill in the art to have applied the alkali soluble organic resin film of Kojima directly to the Al-coated steel sheet formed fuel tank in AAPA for the reasons discussed in the Amendment filed on April 28, 2003, and for the additional reasons discussed herein. AAPA does not teach or suggest a fuel tank with a protective resin film for at least providing anti-scratching properties, an alkali-soluble removable resin film from the surface of the Al-coated steel sheet after press-forming to a final shape, or a soluble resin film in an alkali liquid of pH 9.0 or higher having a carboxyl group in its molecule with an acid value of 40-90 as set forth in amended independent claim 1.

Kojima does not teach or suggest a fuel tank having improved durability and corrosion resistance properties, a protective resin film, or removing a resin film after press-forming an Al-coated steel sheet to a final shape. Kojima fails to teach or suggest a fuel tank with improved durability and corrosion resistance properties but instead is directed to preventing defects, such as cracking and buckling. In addition, Kojima does not teach or suggest a protective resin film but rather discloses a lubricant to function as a spacer to prevent direct metal-to-metal contact between dies in a steel pipe. The claimed invention is a protective resin film that is formed directly on the surface of the Al plating layer and protects the Al plating layer from being damaged after removal of the resin film, thereby allowing the Al plating layer to exhibit excellent internal corrosion resistance. The protective resin film also includes excellent anti-scratching properties. Kojima also does not teach or suggest removing a resin film after press-forming an Al-coated steel sheet to a final shape but instead is clearly directed to the process of hydroforming, with the option of removing a resin film. Therefore, Kojima fails to cure the deficiencies of AAPA.

Moreover, there would be no motivation to combine the teachings of an Al-coated fuel tank of AAPA with an alkali-soluble resin used in the process of hydroforming in Kojima. Kojima discloses a lubricant for use on steel pipe used in the process of hydroforming. In particular, hydroforming as disclosed in Kojima is used for forming piping or tubing of a cylindrical or tubular nature into short t-shaped pieces. AAPA is directed to an Al-coated steel sheet formed to a fuel tank. Clearly, one skilled in the art who would be forming a steel sheet into a fuel tank would not look to a disclosure directed to a process of hydroforming tubular shapes into t-shapes. In particular, one using the process of press-forming would not look to hydroforming cylindrical shapes for press-forming sheets of steel. Also, AAPA discloses Al-coated steel while Kojima discloses the use of carbon and stainless steel. For the foregoing reasons, Applicants respectfully request reconsideration of the Examiner's rejection of independent claim 1.

Claims 4-7 and 9 depend from and add further limitations to independent claim 1 and are deemed to be patentable for the reasons discussed previously in connection with amended independent claim 1. Reconsideration of the rejection of claims 4-7 and 9 is respectfully requested.

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Claim 10 stands rejected under 35 U.S.C. §103(a) for obviousness over AAPA in view of Kojima and further in view of Japanese Patent No. 410265967 to Teruaki et al. (hereinafter "Teruaki").

Teruaki discloses the formation of a chromate-containing resin film on a surface of an Al-plating layer. The film is located on one side or both sides of a hot tip Al-coated steel sheet. Teruaki discloses a film containing 2-13 wt.% Si.

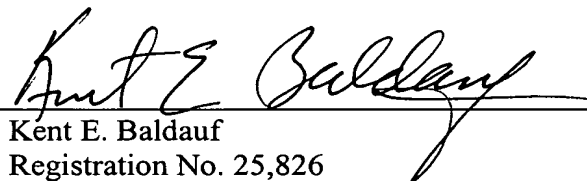
Teruaki does not cure the deficiencies of AAPA or Kojima with respect to amended independent claim 1. Furthermore, Teruaki does not teach an alkali-soluble resin film as in dependent claim 10. Teruaki discloses 2-13 wt.% Si and does not teach or suggest 1-30 mass % powdery silica as in dependent claim 10. Reconsideration of the rejection of claim 10 is respectfully requested.

In view of the foregoing amendments and remarks, claims 1, 4-7 and 9-10 are believed to be in condition for allowance. Reconsideration of the Examiner's rejections and allowance of claims 1, 4-7 and 9-10 are respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By



Kent E. Baldauf
Registration No. 25,826
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1818
Telephone: 412-471-8815
Facsimile: 412-471-4094